and concludes that an object satisfies æsthetic demands when the objective conditions fulfill the suggestions aroused by it. Mr. Lough describes a new perimeter made for the Harvard laboratory in which the stimulus is stationery and the fixation point movable.

Mr. F. E. Bolton has repeated and varied, with students at the University of Wisconsin, the experiments on the accuracy of recollection and observation suggested by Prof. Cattell and published in this JOURNAL (Dec. 6., 1895). The scientific students showed greater accuracy of observation and memory than the classical students, and this held even in regard to literary information. The average of the classical students gave 1839 as the date of Victor Hugo's death!

Under Discussion and Reports are given the discussion by Profs. Ladd and Baldwin on consciousness and evolution before the American Psychological Association; Dr. Nichols claims that the existence of specific nerves for pain has been proved; Prof. Herrick writes from his own experience on the testimony of heart disease to the sensory facies of the emotion, and Mr. G. M. Stratton discusses the relation between psychology and logic.

The number concludes with reviews of recent psychological literature, contributed by sixteen writers, and notes.

SOCIETIES AND ACADEMIES.

BIOLOGICAL SOCIETY OF WASHINGTON, 260TH MEETING, SATURDAY, APRIL 18.

WM. H. DALL exhibited two skins of the Glacier or St. Elias bear of Alaska (*Ursus Emmonsi*, Dall), kindly lent for exhibition to the Society by Mrs. Admiral Emmons. He stated that the skins from which the original description in SCIENCE (N. S. II., p. 87, July 26, 1895) was made, were probably summer skins, the hair being shorter and darker than in those shown, which appear to be winter skins, in which the larger part of the hair is white and much thicker and more woolly, the general tint being hardly darker than in the gray wolf of Alaska. These skins had been dressed and trimmed by a furrier, so that the extremities of the head and limbs were defective, but the peculiar breadth of the head and the remarkable bluish gray coloration of the entire coat indicated an animal specifically distinct from any American bear hitherto known, but more nearly allied to the black than to the brown bears. This opinion, he said, is shared by Dr. Merriam, Mr. True and other students of mammals who have examined them. Earnest efforts are being made to obtain a skull and skin suitable for mounting during the present season.

Under the title *Preliminary Notes on Middle Cambrian Medusæ*, Chas. D. Walcott, of the U. S. Geological Survey, briefly outlined the character and scope of an extended review of the fossil medusæ, prepared by him. He stated that the preliminary announcement of a review of the fossil medusæ of the Middle Cambrian terrane must be modified, as during the last two months the scope of the work had been broadened and a memoir including not only the fossil forms of the Middle Cambrian, but also those of the lower Cambrian and of the Jurassic of Europe, had been practically completed.

A description was given of the mode of occurrence, conditions and manner of preservation, and the interrelations of the fossil and living medusæ, including an account of some interesting experiments that he had made of the phenomena attending the preservation of recent or living forms.

The numerous plates with which the memoir will be illustrated were shown, 45 being devoted to fossil forms and 7 or 8 illustrating the relationship to recent species.

B. E. Fernow described a *Pine Coppice* in New Jersey, being a remarkable area known as the East and West Plains of nearly 15,000 acres extent, covered with a growth of *Pinus rigida*, sprouting from the stump.

In spite of the poor, shallow, sandy gravel soil with an impenetrable subsoil, hardpan and bog ore underlying it and a periodic recurrence of fires, these pines maintain themselves in a regular coppice. Among the specimens exhibited there was a root bearing two sprouts which had evidently been developed into trees one after the other, the older burnt out, the younger showing 83 years of growth, pointing to a persistence of the root of probably over 150 years.

Since the sprouting from the stump of conifers, especially pines, is most unusual and at least the persistence of the sprouts has generally been doubted, this exhibit under the specially unfavorable conditions cited is of great interest.

The well-observed capacity of the species to develop adventitious buds seems here to serve for the purpose of maintaining the occupancy of the soil. Cones develop on 3 to 5-years-old sprouts, but germinative seeds are rarely found.

F. A. Lucas,
Secretary.

GEOLOGICAL SOCIETY OF WASHINGTON.

At the 43d meeting, held in Washington, D. C., April 22, 1896, communications were presented as follows: 'A new Laccolite Locality in Colorado and Its Rocks,' by Mr. G. K. Gilbert and Mr. Whitman Cross; 'The Origin of some Mountain Scarps,' by Mr. M. R. Campbell.

Mr. Gilbert described a laccolitic locality discovered last summer in southern Colorado. Dakota and older rocks are bent into a dome with a height of 1,000 feet and a width of 5 miles. Many dikes traverse this and two laccolites are exposed in partial section. The horizons of intrusion are more than 600 feet below the base of the Dakota. The date of intrusion is approximately indicated as Eocene or late Cretaceous. The intruded rock is more basic than is ordinarily found in laccolites and is much more easily disintegrated by weathering. The neighboring sandstones and those portions of neighboring shales which have been baked by the intrusions resist erosion better than the igneous rocks, so that the laccolites find topographic expression in valleys instead of hills. A mass of altered sandstone, protecting a pedestal of shale and igneous rock, stands prominent above the country, constituting the crest of Twin Butte, the most conspicuous landmark of the region.

The rocks of the laccolite and dikes were described by Mr. Whitman Cross. The rock of the laccolite and of most of the dikes is a basic syenite porphyry, in which the ferromagnesian silicates, augite, biotite and olivine, exceed the feldspathic constituent. Augite is the predominant silicate. These rocks are allied to a large series from the plains of Colorado and New Mexico, to be described hereafter.

Mr. M. R. Campbell discussed the origin of the eastward facing scarp of the Blue Ridge throughout North Carolina, which has been attributed (1) to the action of sea waves on an elevated coast, (2) to the normal erosion of a broadly uplifted peneplain, and (3) to deformation produced by radial movements in the crust of the earth. The first and second theories he regarded as obsolete or insufficient. The third theory seems to offer the best explanation, but deformation alone could hardly produce the present scarp; there seems to have been modifying conditions which have not heretofore been formulated, but which were probably the immediate cause of the scarp production.

No radial movement is known to have occurred in the Appalachians of sufficient intensity to produce so steep a scarp, but if, during a period of baseleveling, a slow monoclinal uplift occurs, the portion of the region which is beyond the influence of the uplift will remain at baselevel, whereas in that portion in which the movement is at a maximum the process of baseleveling will be interrupted producing a very different succession of topographic forms. There will be an intermediate zone in which the forces of elevation and degradation will be balanced against each other.

If the movement is relatively rapid the peneplain will encroach but slightly upon the uplift. If the movement is slow the peneplain will encroach to a much greater extent not only along the streams, but in the inter-stream areas also. The result of this encroachment is to accentuate the slope produced by the uplift, and if the movement is extremely slow the slope will become a scarp.

If this hypothesis is correct the peneplain which caps the Blue Ridge is continuous with the Piedmont plain at a very short distance from the foot of the ridge, but the intermediate, or sloping, portion of the old peneplain is almost completely removed by more recent erosion along the zone of tilting.

In the vicinity of Roanoke, Va., this uplift turned toward the north and crossed the Appalachian valley. In this portion of its course similar results were produced, but the rocks are not hard enough to preserve the scarp as

they do further south. In crossing the Appalachian valley this uplift protected the basin of New River against the encroachment of the Atlantic streams, which otherwise would, doubtless, have captured its headwaters. In this region also some of the tilted portion of the older peneplain is probably preserved in an intermediate level which some observers have classed is a distinct peneplain.

It seems probable that in other regions local uplifts have occurred during the continuance of periods of extensive baseleveling, and if so similar forms have probably been produced.

W. F. MORSELL.

U. S. GEOLOGICAL SURVEY.

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, APRIL 21.

MR. LEWIS WOOLMAN described the imbedded trees in the cedar swamps of Cape May Co., N. J., from which cedar shingles are manufactured. The lumber men distinguish two kinds of logs: those from 'windfalls' or trees overturned with their roots and 'breakdowns' or those broken off by the wind or other agency. The wood of the former is always well preserved, while that of the 'breakdowns' is not generally in as good condition. From a sound trunk 32 feet long 4,000 cedar shingles have been cut. The tree contained upwards of 800 rings of growth, and the wood when cut emitted a distinct odor.

Mr. A. E. Brown stated that he had recently had an opportunity of examining in the British Museum a cast of the portion of a skull of *Pithecanthropus erectus* discovered by Dr. Dubois. An examination of the cast supports the opinion advanced by Cope and Allen before the Academy that the remains as described and figured by Dubois present no characters separating the species from *Homo Neanderthalensis*. The Java skull is possibly a little flatter than the Neanderthal specimen, but this is purely individual and is compensated for by a bump over the coronal suture. It is also a little more inflated postero-laterally, the supra-orbital ridges being perhaps not quite so thick, although they project as much, if not more. The Java skull is about five-sixths or seven-eighths the length of the other, the cubical capacity being somewhat less.

The phylogeny of man and the apes was considered by Messrs. Rothermell, Brown and Chapman.

Anthropological Section, April 10. Charles Morris, Recorder. Prof. Witmer made a communication on the relations of modern psychology to anthropology. Numerous examples were adduced to illustrate the connection between psychic and physical action, modern psychology beginning with a study of sensation rather than movement. The law of Fechner and Weber, that if stimuli increase in arithmetical proportion, sensation will increase in geometrical proportion, was, although repudiated by physiologists generally, held by the speaker as furnishing an index of discrimination and indicating methods by which we can distinguish and measure individual responsiveness to various stimuli. Devices for registering and measuring psychical responsiveness were described.

The subjects of psycho-neural tests, temperaments and the effects of stimuli on unconscious movement were discussed by Messrs. Kavanaugh, Mills, Allen, Witmer and Reisman.

Botanical Section, April 13. Dr. Charles Schaeffer, Recorder. Mr. Lippincott presented a specimen of *Grindelia squamosa*, a Western plant, collected at Swedesboro', N. J. He also read a paper on the propagation of orchids.

A paper on the varieties of bacteria, their cultivation and their life history was read by Dr. Rabinowitsch.

Dr. Ida Keller exhibited the effect of chlorine in changing the blue color of a *Cinneraria* to pink due to the formation of hydro-chloric acid in the petals. The experiment was made in connection with a consideration of the acid or alkaline contents of vegetable cells.

EDW. J. NOLAN,
Recording Secretary.

GEOLOGICAL CONFERENCE OF HARVARD UNIVERSITY, APRIL 7, 1896.

Ice Phenomena in Green Bay, Lake Michigan. By E. P. CAREY.

The Great Lakes offer an interesting field for the study of ice action under the influence of the wind, especially at the head of Lake Superior in the vicinity of Duluth, and in Green

Bay, at the west of Lake Michigan, from which it is almost entirely shut off except a very narrow strait called the 'door.'

At these two localities the effects are quite different. Mr. D. J. Woolman, of Duluth, states that at the head of Lake Superior the ice, which has formed in early winter some distance out from the shore, usually soon becomes broken up by easterly or westerly winds and is subsequently piled up by the wind in a ridge several feet high along the shore. In later winter the ice freezes more deeply and so becomes frozen to the bottom for some distance out from the shore. Beyond this limit of freezing the outer ice again becomes broken up by the wind, and in a similar way another ridge of ice is formed a few rods from the shore, roughly parallel with the first ridge, and enclosing a sheet of smooth ice. In this way two or more ridges of ice are formed parallel with the shore.

In Green Bay, however, the effect is quite different. The Bay is almost entirely shut off from Lake Michigan and in winter becomes entirely frozen over, and after once freezing over the ice is rarely broken up to any extent by the wind. On the other hand, a strong wind from the west or northwest sometimes has the effect of causing the ice to move shoreward in the direction of the wind, as a solid sheet, thus piling it up along the shore to a depth of sometimes sixty feet or more. A movement of this kind generally occurs at least once during a winter, and is fully accomplished in from *one* to *three* minutes.

In this way considerable geological work is done along the shore, and it is not uncommon to see, after the ice melts in spring, a pile of shore debris piled up in places to a height of eight feet, and showing features characteristic of moraines. The amount of geological work done at different points along the shore differs and at any point seems rather to depend on the slope of the shore and conditions other than the ice movement at that point, *e. g.*, at the point where the maximum amount of ice movement occurred the minimum amount of work was done. Here the conditions were these, viz: A steep slope just at the shore line, which must have had the effect of causing the ice to break almost as soon as it began to move. Along the shore about eight feet from the original ice front, stood a pile of slabs, piled loosely to a height of ten feet, and parallel with the shore so as to directly oppose the advance of the ice. These slabs, however, though completely buried for many feet by the ice which pushed up over and beyond them, were nevertheless scarcely disturbed. As the ice became broken at the shore line the pieces filled in between the shore and the slabs so that the ice following pushed up over the ice already deposited there, leaving the slabs practically intact.

T. A. Jaggar, Jr.,
Recording Secretary.

PROCEEDINGS OF THE TORREY BOTANICAL CLUB.

The Club met on Tuesday evening, April 9, 1896, President Addison Brown in the chair, and 30 persons present. Two new members were elected.

Dr. Albert Schneider read a paper on 'The Uses of Lichens,' giving an instructive account of the past and present uses of these plants in medicine and the arts. Mr. P. A. Rydberg read his announced paper entitled 'Preliminary Notes on a Revision of the North American species of *Potentilla* and Related Genera.' This was accompanied by many herbarium specimens and drawings, and drew forth remarks from the President and Mrs. Britton.

The last paper was that of Mrs. E. G. Britton, on 'Notes on Mexican Mosses.' Mrs. Britton gave a short historical account of the various collections of mosses which have been made in Mexico, stating that she had recently received, for naming, the specimens gathered by Pringle, as well as those collected in 1892 by Smith and Brunner. Specimens from these two collections, as well as others from those of F. Müller, C. Mohr, Hahn, etc., were exhibited, and a comparison was made of the number of genera and species which are common to Mexico and the United States.

The President reminded the members of the first Field Day of the season, April 25th, at Prince's Bay, S. I

W. A. Bastedo,
Secretary pro tem.